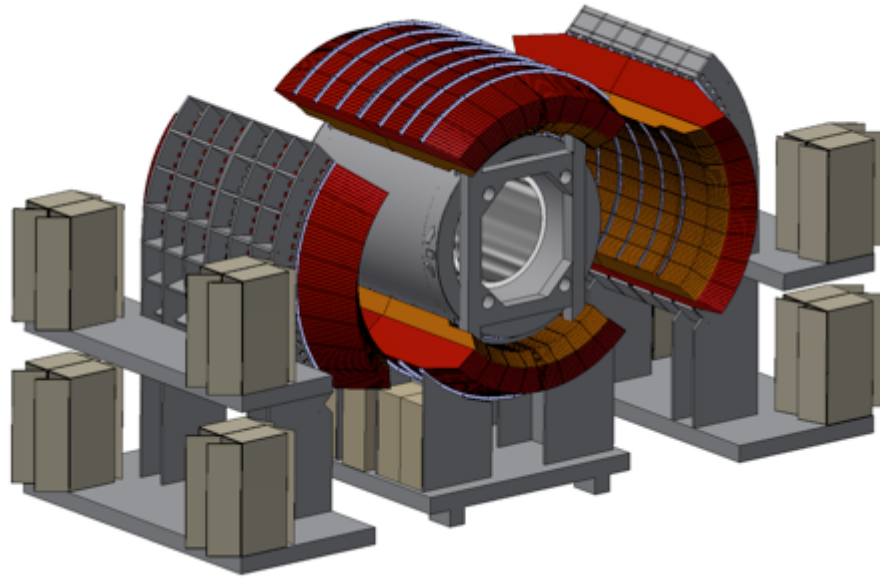
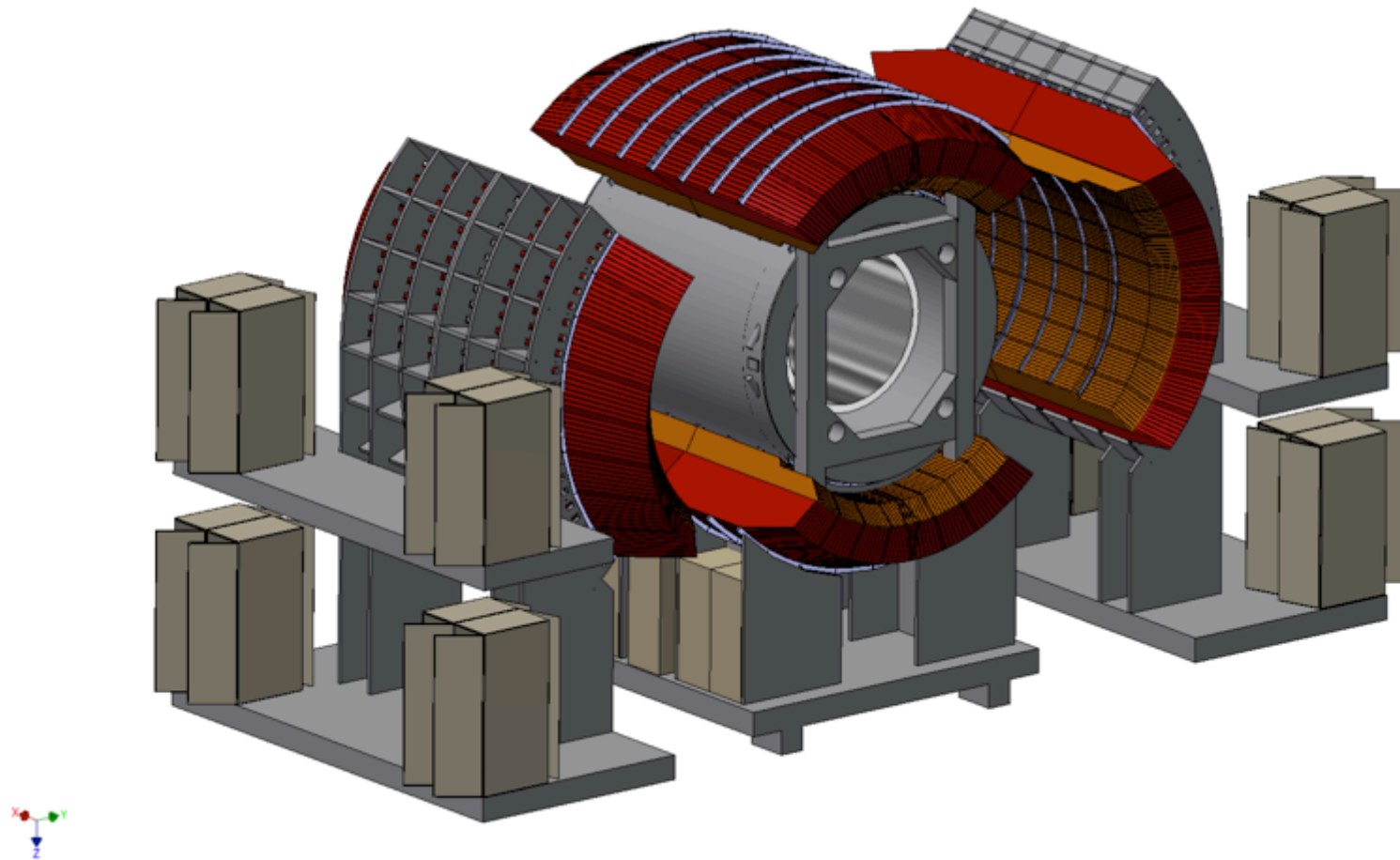


sPHENIX Mechanical



Don Lynch & Rich Ruggiero
April 24, 2014

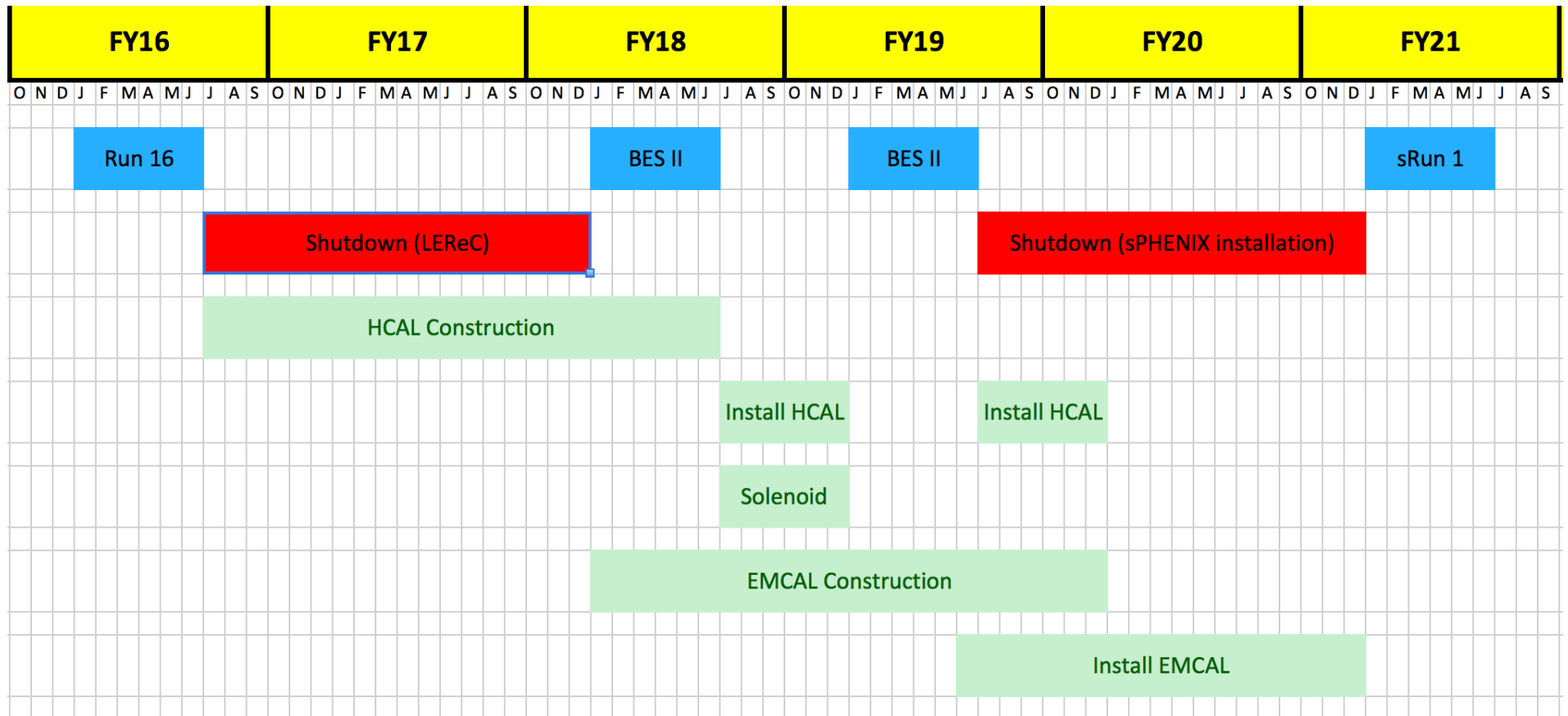
sPHENIX Concept



April 24, 2014

sPHENIX Mechanical Design

sPHENIX schedule

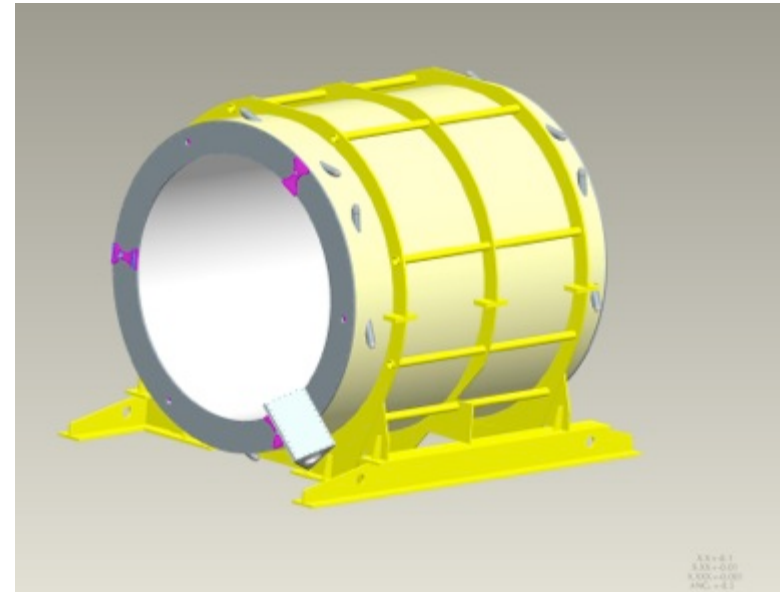


Desirable to have whole HCal installed prior to
 April 24, 2014
 Run-19

sPHENIX Mechanical Design

Magnet (BABAR) (Magnet Div)

• Acquire rights	Done
• Evaluate Transport	5/1/14
• Design Transport fixtures	5/1/14
• Fabricate Transport Fixtures	5/1/14
• Evaluate BNL test facility requirements	6/1/14
• Prepare test facility	8/1/14
• Install Transport fixtures	8/1/14
• Transport to BNL	9/1/14
• Install in test facility	10/1/14
• Design tests/test equipment	10/1/14
• Fabricate/procure test equipment	1/1/15
• Run tests	6/1/15
• Design Magnet modifications	12/1/14
• Fabricate magnet modifications	6/1/15
• Install magnet modifications	8/1/15
• Evaluate final installation	9/1/15
• Design installation support equipment	12/31/2016
• Fabricate/procure support equipment	7/1/2018
• Transport to IR	7/1/2018
• Install	10/31/2019
• Test	11/31/2019
• Commission	12/31/2019



April 24, 2014

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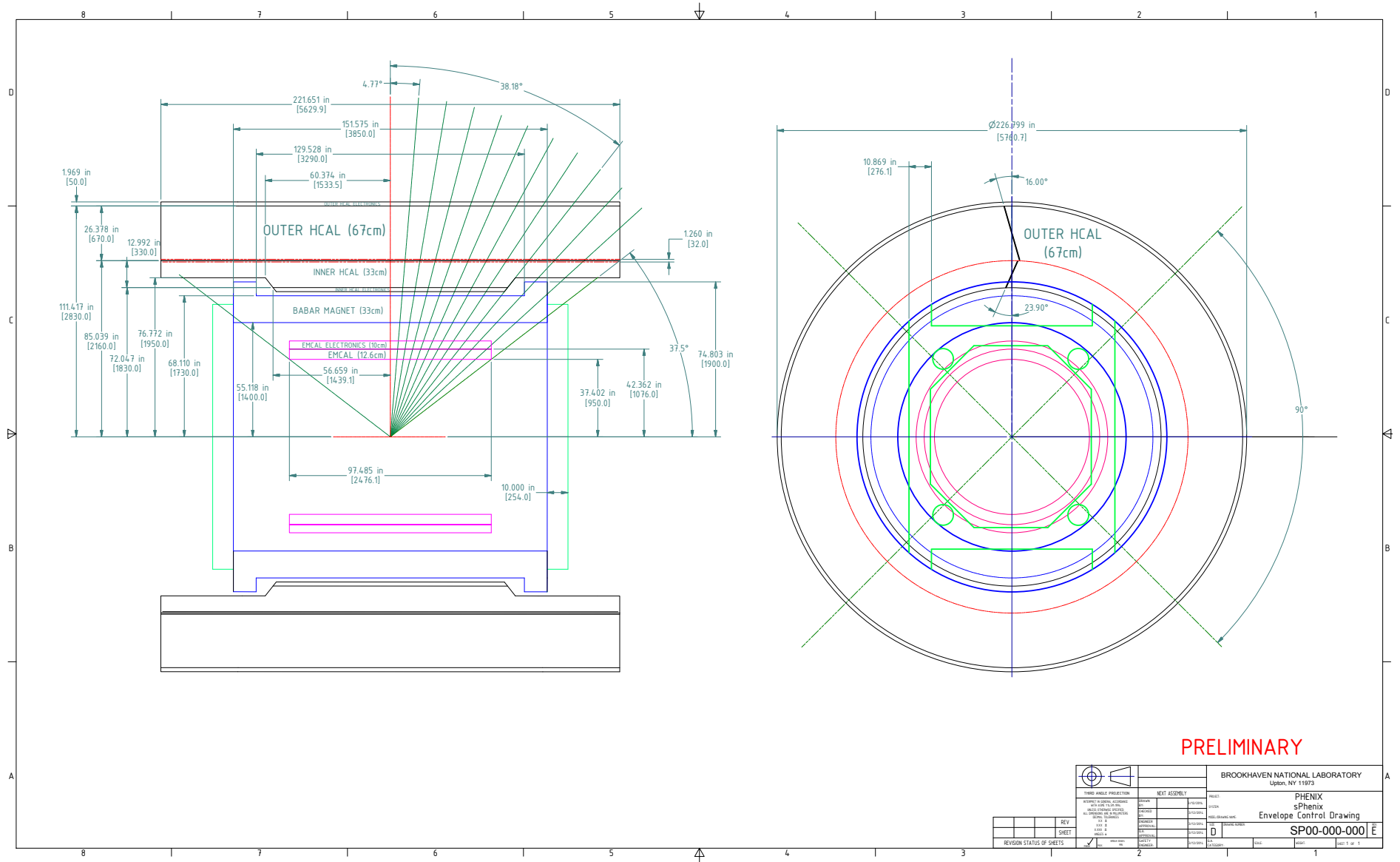
sPHENIX Engineering:

Major Subsystems/Subtopics:

• Magnet (BABAR) (Magnet Div)	start 2/1/14 - 12/31/2018
• Hadronic Calorimeter (HCAL) (PHENIX)	start 2/1/14 - 12/31/2020
• EM Calorimeter EMCal (PHENIX)	start 2/1/14 - 12/31/2020
• VTX (RIKEN)	start 2/1/14 - 12/31/2020
• DIRC (?)	start ? - 12/31/2020
• VTX additional layers (RIKEN)	start ? - 12/31/2020
• Carriage Support structure (PHENIX)	start 2/1/14 - 12/31/2020
• Readout Electronics (PHENIX)	start 2/1/14 - 12/31/2020
• Infrastructure (PHENIX ++)	
• Electrical Power Services (PHENIX)	start ? - 12/31/17
• Instrumentation Support (Signal trays & Racks) (PHENIX)	start ? - 12/31/2020
• Cryo Services (CAD)	start 2/1/14 – 8/1/18
• Cooling water (CAD)	start ? - 12/31/2017
• Safety Systems (PHENIX)	start ? - 12/31/2020
• Work Platforms and Access/Egress Structures (CAD)	start ? - 12/31/2017
• HVAC (CAD)	start ? - 12/31/2017
• PHENIX Decommissioning (CAD, PHENIX)	start ? - 6/30/2017
• System Integration (PHENIX)	start 2/1/14 - 12/31/2020
• Testing (PHENIX)	start 2/1/14 - 12/31/2020
• Installation (PHENIX, CAD)	start 2/1/14 - 12/31/2020
• Commissioning (PHENIX)	start 2/1/14 - 12/31/2020

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Hadronic Calorimeter (HCAL) (PHENIX)

- | | |
|---|----------------|
| • Conceptual design options | • 4/1-5/1/14 |
| • tradeoff studies innie vs outie including cost estimates | • 5/1-11/1/14 |
| • initial prototype(s) | • 11/1-12/1/14 |
| • final design concept | • 3/1/15 |
| • production estimates | • 4/1/15 |
| • Production prototype design/drawings (single module) | • 7/1/15 |
| • production prototype tools, techniques, procedures and fixtures | • 9/1/15 |
| • production prototype test planning | • 10/1/15 |
| • production prototype fabrication & procurement | • 11/1/15 |
| • production prototype test(s) | • 2/1/16 |
| • assembly final design | • 4/1/16 |
| • assembly tools, techniques, procedures and fixtures | • 6/1/16 |
| • assembly fabrication & procurement | • 12/1/16 |
| • assembly planning | • 12/1/16 |
| • final assembly of all modules | • 12/1/17 |
| • acceptance/qualification testing | • 2/1/17 |

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EM Calorimeter EMCal (PHENIX) (Need level 2 and engineering Manager)

- Conceptual design options
- tradeoff studies innie vs outie including cost estimates
- initial prototype(s)
- final design concept
- production estimates
- Production prototype design/drawings (single module)
- production prototype tools, techniques, procedures and fixtures
- production prototype test planning
- production prototype fabrication & procurement
- production prototype test(s)
- assembly final design
- assembly tools, techniques, procedures and fixtures
- assembly fabrication & procurement
- assembly planning
- final assembly of all modules
- acceptance/qualification testing

VTX (RIKEN)

- Conceptual design options
- tradeoff studies innie vs outie including cost estimates
- initial prototype(s)
- final design concept
- production estimates
- Production prototype design/drawings (single module)
- production prototype tools, techniques, procedures and fixtures
- production prototype test planning
- production prototype fabrication & procurement
- production prototype test(s)
- assembly final design
- assembly tools, techniques, procedures and fixtures
- assembly fabrication & procurement
- assembly planning
- final assembly of all modules
- acceptance/qualification testing

- DIRC (?)
 - conceptual integration plan
 - engineering design and tradeoff studies
 - support structure design
 - assembly & handling fixtures and tooling

- VTX additional layers (RIKEN)
 - Conceptual design options
 - tradeoff studies including cost estimates
 - initial prototype(s)
 - final design concept
 - production estimates
 - Production prototype design (single module)
 - production prototype tools, techniques, procedures and fixtures
 - production prototype fabrication & procurement
 - production prototype test planning
 - production prototype test(s)
 - assembly final design
 - assembly tools, techniques, procedures and fixtures
 - assembly fabrication & procurement
 - assembly planning
 - final assembly of all modules
 - acceptance/qualification testing